We claim:

1. A composition for transfecting a cell which comprises one or more nucleic acid molecules, one or more peptides or proteins, and one or more transfection agents.

2. The composition of claim 1, wherein said composition comprises two or more peptides and/or proteins.

3. The composition of claim 1, wherein said composition comprises two or more transfection agents.

4. The composition of claim 1, wherein said composition comprises a peptide- or protein-nucleic acid complex.

5. The composition of claim 4, wherein said peptide- or protein-nucleic acid complex comprises two or more peptides, or proteins or both.

6. The composition of claim 1, wherein said transfection agent comprises one or more cationic lipids.

7. The composition of claim 6, wherein said transfection agent further comprises one or more neutral lipids.

8. The composition of claim 1, wherein said transfection agent comprises one or more dendrimers.

9. The composition of claim 8, wherein said transfection agent further comprises one or more lipids.

10. The composition of claim 6, wherein said cationic lipids comprise one or more monovalent cationic lipids.

11. The composition of claim 10, wherein said monovalent cationic lipids are selected from the group consisting of DOTMA, DOTAP, DMRIE, and DDAB.

12. The composition of claim 6, wherein said cationic lipids comprise one or more polyvalent cationic lipids.

13. The composition of claim 12, wherein said polyvalent cationic lipids are selected from the group consisting of DOSPA, DOSPER, DOGS, TMTPS, TMTOS, TMTLS, TMTMS, and TMDOS.

14. The composition of claim 7, wherein said neutral lipids are selected from the group consisting of DOPE, DPhPE, and cholesterol.

15. The composition of claim 8, wherein said dendrimers are selected from the group consisting of dense star dendrimers, PAMAM dendrimers, NH_3 core dendrimers, ethylenediamine core dendrimers, dendrimers of generation 5 or higher, dendrimers with substituted groups, dendrimers comprising one or more amino acids, grafted dendrimers and activated dendrimers.

16. The composition of claim 1, wherein one or more of said transfection agents are convalently linked to one or more of said peptides and/or proteins.

17. The composition of claim 6, wherein one or more of said cationic lipids are covalently linked to one or more of said peptides and/or proteins.

18. The composition of claim 7, wherein one or more of said neutral lipids are covalently linked to one or more of said peptides and/or proteins.

19. The composition of claim 8, wherein one or more of said dendrimers are covalently linked to one or more of said peptides and/or proteins.

20. The composition of claim 1, wherein said peptides and/or proteins are derived from animal, bacterial, viral peptides and/or proteins.

21. The composition of claim 1, wherein said peptides and/or proteins are conjugated to one or more nucleic acid binding groups.

22. The composition of claim 21, wherein said nucleic acid binding groups comprise at least one polyamine.

23. The composition of claim 22, wherein said nucleic acid binding group comprises at least one spermine.

24. The composition of claim 1, wherein at least one of said peptide and/or protein is a nuclear localization protein or peptide.

25. The composition of claim 1, wherein at least one of said peptide and/or protein is a fusagenic peptide or protein.

26. The composition of claim 1, wherein at least one of said peptide and/or protein is a receptor-ligand peptide or protein.

27. The composition of claim 1, wherein at least one of said peptide and/or protein is a transport peptide or protein.

28. The composition of claim 20, wherein at least one of said peptide and/or protein is a viral peptide or protein.

29. The composition of claim 28, wherein said virus is selected from the group consisting of an influenza virus, a vesicular stomatitis virus, an adenovirus, an alphavirus, a Semliki Forest Virus, a hepatitis virus, a herpes virus, an HIV virus, and a simian virus.

30. The composition of claim 1, further comprising DEAE-dextran, chloroquine or combinations thereof.

31. The composition of claim 1, wherein at least one of said peptide and/or protein is selected from the group consisting of an insulin, a transferrin, a epidermal growth factor, a fibroblast growth factor, a lactoferrin, a fibronectin, an adenovirus penton base, Knob, and hexon protein, a vesicular stomatitis virus glycoprotein, a Semliki Forest Virus core protein, a influenza hemagglutinin, a hepatitis B core protein, an HIV Tat protein, a herpes simplex virus VP22 protein, a histone protein, a high mobility group protein, and invasin protein, and internalin protein, an endotoxin, a diptheria toxin, a shigella toxin, a melittin, a magainin, a gramicidin, a cecrophin, a defensins, a protegrins, a tachyplesins, a thionins, a indolicidin, a bactenecin, a drosomycin, a apidaecins, a cathelicidin, a bacteriacidal-permability-increasing protein, a nisin, and a buforin, and fragments thereof.

32. The composition of claim 1, wherein said composition is capable of transfecting a primary cell culture, a passaged cell culture or a cell line.

33. The composition of claim 32, wherein said cell line is a human cell line.

34. The composition of claim 32, wherein said cell line is an animal cell line.

35. The composition of claim 32, wherein said cell line is a fibroblast.

36. The composition of claim 1, wherein at least one of said peptides and/or proteins comprise multimers of the same or different peptides or proteins.

37. The composition of claim 1, wherein said peptide and/or protein comprises one or more amino acid derivatives or analogues.

38. The composition of claim 1, wherein at least one of said peptides and/or proteins comprises two or more functions selected from the group consisting of fusagenic, nuclear localization, transport, receptor-ligand and cell adhesion.

39. A pharmaceutical composition comprising an amount of the composition of claim 1 effective for transfection of a targeted cell or tissue and a pharmaceutical carrier.

40. A therapeutic composition comprising an amount of the composition of claim 1 effective for transfection of a targeted cell or tissue with a selected therapeutic nucleic acid.

41. A diagnostic composition comprising an amount of the composition of claim 1 effective for transfection of a targeted cell or tissue with a selected diagnostic nucleic acid.

42. A composition for transfecting a cell which comprises a component of transfection agent covalently linked to a peptide or protein.

43. The composition of claim 42 wherein the component of a transfection agent is a lipid.

44. The composition of claim 42 wherein the component of a transfection agent is a cationic lipid.

45. The composition of claim 42 wherein the component of a transfection agent is a neutral lipid.

46. The composition of claim 42 wherein the component of a transfection agent is a dendrimer.

47. The composition of claim 42 further comprising a receptor-ligand protein.

48. A composition for transfecting a cell obtained by combining one or more nucleic acid molecules, one or more peptides or proteins, and one or more transfection agents.

49. A composition for transfecting a cell of claim 48 obtained by first forming a peptide- or protein-nucleic acid complex followed by addition of a transfection agent capable of aggregating the peptide-or protein-nucleic acid complex.

50. The composition of claim 49 wherein after the peptide-or protein- nucleic acid complex is formed, said complex is added to a mixture of a cationic lipid and a neutral lipid.

51. A method for transfecting a cell with a nucleic acid, the method comprising the step of contacting the cell with the transfection composition of claim 1.

52. A method for transfecting a cell with a nucleic acid, the method comprising the step of contacting the cell with the transfection composition of claim 17.

53. A method for transfecting a cell with a nucleic acid, the method comprising the step of contacting the cell with the transfection composition of claim 31.

54. A method for transfecting a cell with a nucleic acid, the method comprising the step of contacting the cell with the transfection composition of claim 48.

55. A method for transfecting a cell with a nucleic acid, the method comprising the steps:

(a) admixing one or more peptides or proteins with a nucleic acid to form a peptide-nucleic acid complex or a protein-nucleic acid complex;

(b) adding a transfection agent to the complex from step (a) to obtain an aggregate of the transfection agent and said complex; and

(c) contacting said cell with the aggregate from step (b).

56. The method of claim 55 wherein the peptides or proteins comprises a sub-cellular localization signal sequence, a nuclear localization signal sequence, a fusagenic sequence, a transport or trafficking sequence, receptor-ligand sequence or a cell adhesion sequence.

57. The method of claim 56 wherein the peptide or protein is modified by covalent bonding to a nucleic acid-binding group.

58. The method of claim 57 wherein the nucleic acid-binding group is a spermine.

59. The method of claim 58 wherein the peptide is Sp-NLS, Sp-NLSNLS, Sp-NLSRGD, Opf-GG-1, Opf-GG-2, Opf-GG-2-CYS or Sp-Tat.

60. The method of claim 55 wherein the transfection agent comprises a dendrimer.

61. The method of claim 60 wherein the transfection agent comprises an activated dendrimer.

62. The method of claim 61 wherein the dendrimer is selected from the group of GX(NH3) or GX(EDA) dendrimers where X is an integer from about 5 to about 10.

63. The method of claim 60 wherein the dendrimer is conjugated to an arginine or a lysine.

64. A transfection reagent kit which comprises a transfection agent and a peptide or protein or a modified peptide or protein capable of enhancing transfection of the transfection agent.

65. The kit of claim 64 which comprises a cationic lipid transfection agent.

66. The kit of claim 65 wherein the cationic lipid transfection agent is selected from the group "LIPOFECTAMINE", "LIPOFECTIN", "LIPOFECTACE", "CELLFECTIN", "MULTIFECTOR", or "TRANSFECTIN" .

67. The kit of claim 66 wherein the peptide is Sp-NLSNLS.

68. The kit of claim 66 wherein the peptide is Sp-Tat.

69. The kit of claim 64 which comprises a dendrimer transfection agent.

70. The kit of claim 69 wherein the dendrimer is a dense star dendrimer or an activated dendrimer.

71. A kit of claim 64 that is a diagnostic kit and which further comprises a diagnostic nucleic acid.

72. A peptide comprising an NLS sequence modified by covalent bonding to a nucleic acid-binding group.

73. The modified peptide of claim 72 which comprises a dimer or multimer of an NLS sequence.

74. The modified peptide of claim 73 wherein the nucleic acid-binding group is a spermine.

75. A peptide comprising a Tat sequence modified by covalent bonding to a nucleic acid-binding group.

76. The modified peptide of claim 75 which comprises a dimer or multimer of a Tat sequence.

77. The modified peptide of claim 76 wherein the nucleic acid-binding group is a spermine.